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Magalie Roman Salas
Secretary, Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: ET Docket No. 00-258

Dear Ms. Salas:

Transmitted herewith, on behalf of Illinois Institute of Technology, are an original and four (4) copies of its reply comments filed in response to the Notice of Proposed Rulemaking, FCC 00-455, released January 5, 2001 in the above-referenced proceeding. A copy of these comments is also submitted herewith on a 3.5 inch diskette in Word 97 format.

Should any questions arise in connection with this filing, kindly contact the undersigned.

Sincerely,



Francis E. Fletcher, Jr.

DC01/355413.1

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Before the
Federal Communications Commission
Washington, D.C. 20554

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MAR 9 2001

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
) ET Docket No. 00-258
Amendment of Part 2 of the Commission's)
Rules to Allocate Spectrum Below 3 GHz for)
Mobile and Fixed Services to Support the)
Introduction of New Advanced Wireless)
Services, including Third Generation Wireless)
Systems)
)
Petition for Rulemaking of the Cellular) RM-9920
Telecommunications Industry Association)
Concerning Implementation of WRC-2000:)
Review of Spectrum and Regulatory)
Requirements for IMT-2000)
) RM-9911
Amendment of the U.S. Table of Frequency)
Allocations to Designate the 2500-2520/2670-)
2690 MHz Frequency Bands for the Mobile-)
Satellite Service)

To: The Commission

REPLY COMMENTS OF ILLINOIS INSTITUTE OF TECHNOLOGY

Illinois Institute of Technology ("IIT"), by its attorneys, hereby replies to comments filed in response to the *Notice of Proposed Rulemaking*, FCC 00-455 (the "*Advanced Services NPRM*") in the above-captioned matter.^{1/} IIT holds licenses in 2500-2690 MHz band for use in the Instructional Television Fixed Service ("ITFS") and, for the reasons stated in its initial comments and in these reply comments, opposes reallocation of the MDS/ITFS spectrum.

^{1/} *Notice of Proposed Rulemaking*, FCC 00-455, released January 5, 2001.

I. INTRODUCTION

IIT, a non-profit technological university, provides via ITFS facilities distance learning advanced degree and certificate programs through 139 courses in science and engineering to more than 1,000 students at nearly 60 receive sites in the Chicago, Illinois, metropolitan area. The comments filed by IIT and others in this proceeding have shown the devastating impact use of the 2500-2690 MHz band for advanced mobile wireless ("3G") services would have upon ITFS-based distance learning programs and emerging fixed wireless broadband services. Assuming the Commission decides that additional candidate spectrum allocations for 3G are justified, the 2500-2690 MHz band should be eliminated from consideration.

II. THE REALLOCATION PROPONENTS HAVE NOT SHOWN THE NEED FOR ANY REALLOCATION OF ADDITIONAL CANDIDATE SPECTRUM FOR 3G SERVICES AT THIS TIME

The Commission should not reallocate spectrum for 3G until the need for additional spectrum is demonstrated. The comments filed by AT&T Wireless ("AT&T"), Verizon, CTIA and other spectrum reallocation proponents provide no substantive support for their claims of exploding demand for 3G services. Further, the reallocation proponents concede that "existing allocations are sufficient to begin the roll-out of such services" (AT&T Comments, p. 4). They make no effort to quantify demand for specific 3G services, or for mobile data through-put requirements, that would not be met with these existing allocations through the use of compression or other technologies. In fact, contrary to the proponents' blind faith in the demand for 3G, there is growing evidence to suggest that 3G is seriously overhyped.^{2/} In these circumstances the Commission should proceed with caution.

^{2/} Recent studies have found consumers to be indifferent to a host of services expected to arrive along with 3G networks. For example, Forrester Research reports that 82.5 percent of mobile customers have no interest in wireless data services. Wireless Watch, Redherring.com, February 28, 2001. *See also*,

Several commenters argue that the United States will “fall behind” Europe or Asia in the 3G “race” absent immediate reallocation of spectrum. That red herring is no substitute for an analysis of the need for frequency reallocation. It is not the Commission’s function to ensure that the United States allocates as much or more spectrum to 3G than the rest of the world. It is the Commission’s task to determine whether any additional spectrum reallocation is required and, if so, from which band, how much and when such spectrum should be reallocated, based upon an assessment of overall spectrum uses and needs here in the United States.

It is hardly surprising that the comments filed by the mobile industry request that *all* of the spectrum bands discussed in the *Advanced Services NPRM* be reallocated for 3G use immediately. Based upon the presentation of the three pairing options in the *Advanced Services NPRM*, however, it is clear that the “additional candidate spectrum” bands have been proposed by the Commission for discussion as alternatives. Given the questionable evidence of demand for 3G and the absence of any demonstration by the reallocation proponents that whatever near term demand for advanced wireless services exists cannot be met using current mobile allocations, it may well be premature to relocate any of this spectrum at this time.

In this regard, AT&T summarily discounts the 747-762 MHz and 777-792 MHz bands (TV Channels 60-69) because they might not be available for as long as 5 years. AT&T Comments, pp. 10-11. In fact, however, that time frame might prove just right.^{3/} No one has yet shown the need for any more immediate allocation of additional spectrum for 3G. Further, the

“Next Generation of Cell Phones Becomes Murky,” Wall Street Journal, February 21, 2001, quoting an Arthur D. Little study that upgraded 2G networks can handle 80% of all services people have been listing for 3G.

^{3/} Verizon Wireless’ executive vice president and chief technology officer Richard Lynch was recently quoted as saying: “For the next three or four years, I don’t see the need to move rapidly toward 3G.” “Next Generation of Cell Phones Becomes Murky,” Wall Street Journal, February 21, 2001.

700 MHz band is far more suitable for mobile operations than any of the “additional candidate spectrum” discussed in the *Advanced Services NPRM* and would make a reasonable 30 megahertz of spectrum initially available for advanced mobile wireless services. At a minimum, a prudent phase-in of additional frequency allocations for 3G is called for.

III. THE 2500-2690 MHZ BAND IS THE LEAST DESIRABLE OF ALL POTENTIAL CANDIDATES FOR 3G REALLOCATION

The record in this proceeding shows that reallocation of the 2500-2690 MHz band would be fraught with interference and other technical problems, adversely affect the educational mission of ITFS licensees such as IIT, and stymie the rollout of high speed fixed wireless access services to underserved populations. Assuming any spectrum is to be reallocated at this juncture, it should not include the 2500-2690 MHz band.

Even some of the 3G reallocation proponents are forced to admit that the 2500-2690 MHz band is not an ideal reallocation choice. For example, AT&T “strongly supports” as its first choice an allocation of 25 megahertz in the 1710-1755 MHz band with 25 megahertz in the 1755-1850 MHz band, coupled with a pairing of 45 megahertz in the 1710-1850 MHz band with an equal amount of spectrum from the 2110-2155 MHz band. Although AT&T’s second choice would pair a “minimum of spectrum available from the 2500-2690 band” with an equivalent amount of spectrum from the 1755-1850 MHz band, it views use of the 2500-2690 MHz band on an internally paired basis as the least desirable alternative, noting that it has “a number of serious disadvantages.” AT&T Comments, pp. 11, 15-17.

Similarly, 3G study group reports on possible use of the 1710-1850 MHz and 2500-2690 MHz bands submitted with the Cellular Telecommunications Industry Association (“CTIA”) comments conclude that “it is feasible to make the 1710-1850 MHz band available for use in two

to three years.” CTIA Comments, Report of the Industry Association Group on Identification of Spectrum for 3G Purposes, February 22, 2001, Executive Summary, p. v. CTIA further concludes that 1710-1850 MHz band could accommodate a combination of geographic or time sharing. *Id.* p. ii. On the other hand, the group found that co-channel sharing was not possible in the 2500-2690 MHz band due to interference concerns. *Id.*, pp. v., 11. The CTIA study group was unable to reach agreement on the feasibility of segmentation (reflecting, among other things, the different leasing and channel swapping arrangements in different markets), and recommended further review by the Commission of several specific issues. In this latter regard, the study group noted the difficulty in considering the 2500-2690 MHz band for 3G use in view of the planned future uses of the band for broadband fixed wireless.^{4/}

The comments submitted on behalf of several equipment manufacturers further support the conclusion that use of the 2500-2690 MHz band for 3G services is inadvisable not only because of the technical difficulty in sharing or segmenting the band, but also in terms of achieving global frequency harmonization and ensuring development of high speed fixed wireless access networks. Based on its participation in joint industry efforts to review the current uses of candidate frequency bands for 3G, Motorola reports that, given the current and planned uses of the 2500-2690 MHz band, the collective view of the participating organizations was that co-channel sharing is not feasible between MDS/ITFS and 3G systems. Therefore, Motorola concludes, it is unlikely that this band can offer a near term solution for 3G spectrum. Motorola notes that the 1755-1850 MHz band, however, is part of the prime candidate band (1710-1855

^{4/} The concerns expressed by AT&T and CTIA are more fully reflected in the Commission staff's conclusion that the lack of uniformity in ITFS and MDS use of the 2500-2690 MHz band from one geographic area to another presents serious challenges to developing band sharing or segmentation options that could be used across the country without severely disrupting ITFS and MDS use. Interim Report, p. ii.

MHz) identified at WRC-2000 for global IMT-2000 use, and that this band is already used in most of the world for mobile services especially 2nd generation GSM services. Motorola further concludes:

Although 2500-2690 MHz was identified by WRC-2000 as a potential IMT-2000 band, no country has yet implemented any commercial mobile services in the band and, in Motorola's opinion, it is unlikely that any country will deploy IMT-2000 services before 2007 at the earliest. Thus, the band does not offer the same near term potential for spectrum harmonization as does the 1710-1850 MHz band that is now widely used globally for 2nd generation systems. Motorola Comments, p. 12.

Lucent Technologies, Inc. also observes that the 2500-2690 MHz band is not currently in operation anywhere in the world for commercial mobile radio services and that this band is sufficiently far from the PCS and DCS 1800 bands that it would impose greater challenges to support the operation of multi-band terminals. Lucent concludes that it would be premature to employ the 2.5 GHz band for advanced mobile wireless services. Lucent Comments, p.9.

Nortel Networks, Inc. supports reallocation of the 1710-1755 MHz and 1755-1850 MHz bands for 3G. Nortel Comments, pp. 5-6. Nortel expresses "serious concerns" with reallocation of MMDS/ITFS spectrum, calling attention to the adverse effects of reallocation of the 2500-2690 MHz band on the substantial investment made by manufacturers in equipment capable of providing advanced fixed wireless services in that band. Nortel Comments, pp. 6-7. Likewise, Cisco Systems, Inc. asserts that any change in the 2500-2690 MHz band, whether a diminution or relocation of spectrum, would threaten the planned deployment of high-speed, broadband services in residential, rural and medium size markets, and harm efforts to promote cross-platform broadband competition. Cisco Systems points out that manufacturers have designed their MDS/ITFS broadband technologies based on the assumption that no mobile services would operate in the 2500-2690 MHz band, making consequent tradeoffs between cost and complexity

in equipment design. If a reallocation were made to permit both fixed and mobile services in this band, the manufacturers' original design assumptions and decisions would no longer hold, necessitating reengineering efforts that could take as much as a year or more to complete and test fully. Cisco Systems also states that any 2500-2690 MHz band segmentation scheme would severely threaten the geographic reach and potential market penetration of the anticipated broadband deployments. Comments of Cisco Systems, Inc., pp. 9-13.

The comments filed by Sprint Corporation, WorldCom, Inc. and The Wireless Communications Association, Inc. ("WCA") all document the need for access to the entire 2.1 and 2.5 GHz spectrum to provide economically viable two-way fixed wireless broadband service, a service in which they have jointly invested billions of dollars. Further, as WorldCom points out, cost-effective two-way broadband equipment is just becoming available in the MMDS/ITFS bands, whereas no such equipment for as yet unidentified relocation spectrum can be expected for years to come. The inescapable conclusion is that any marked reduction in usable MMDS/ITFS spectrum would eliminate MMDS/ITFS carriers from the broadband access market. WCA Comments, p. 28.

IV. THE 2500-2690 MHZ BAND HAS BEEN WELL EMPLOYED BY MMDS/ITFS LICENSEES TO SERVE VITAL PUBLIC INTEREST GOALS, AND IS ABOUT TO PROVIDE ADVANCED WIRELESS SERVICES NO LESS IMPORTANT THAN 3G

Verizon and other 3G reallocation proponents attack educators' use of the 2500-2690 MHz band as inefficient and assert that leasing of excess ITFS capacity to commercial operators has proved contrary to the band's originally intended use for education. Contrary to Verizon's apparent view, however, the Commission repeatedly has found the leasing of excess capacity by ITFS licensees to be in the public interest. Revenues from leasing excess capacity to wireless

cable providers have proved essential to maintaining and expanding educational institutions' ITFS-based distance learning programs. The experience of IIT and other educators demonstrates that vibrant distance learning programs are fostered by the mutually beneficial relationships ITFS licensees have forged with their MMDS partners.^{5/} As noted in its comments, the distance learning program provided through IIT's ITFS facilities has been highly successful. Each semester, over 1,000 students enroll in IIT's ITFS courses in more than a dozen subject areas. During this Spring 2001 semester, IIT's network will broadcast more than 500 hours per week to 58 receive sites serving 1200 student enrollments in 139 ITFS courses. IIT Comment, pp. 6-7. Notwithstanding Verizon's assertions, therefore, ITFS continues to fill an important role in our nation's educational infrastructure, and does so in part through its relationships with its commercial partners. Segmenting the band by taking away the supposedly "substantial portions of the ITFS band that are no longer used for instructional services"^{6/} would destroy the partnerships between ITFS and commercial operators and eliminate the financial underpinnings of ITFS-based distance learning programs.

AT&T states that the "Commission's role as spectrum manager requires it to ensure the highest and best use of this resource."^{7/} It and the other reallocation proponents generally seem to assume that 3G use of this spectrum would be *ipso facto* a "higher and better" use than the incumbents' historical educational television and wireless cable operations. There is no obvious basis for such an assumption. Having the ability to quickly download websites or have multimedia experiences while driving one's car is not necessarily a better and higher use than

^{5/} See Comments of The K-12 Community and the American Association of School Administrators.

^{6/} Verizon Comments, p. 24.

^{7/} AT&T Comments, p. 13.

distance learning. Moreover, in their effort to unfairly denigrate the incumbents' use of the band, the 3G proponents essentially ignore altogether the imminent deployment of new fixed wireless broadband access services over the MMDS/ITFS frequencies. This deployment, it should be noted, has followed quickly upon the heels of the Commission's decisions authorizing the digital and two-way MMDS/ITFS operations fought for by the industry. By no stretch of the imagination can it be argued that MMDS/ITFS licensees are letting valuable spectrum lay fallow.

As the Commission's staff has already concluded:

The 2500–2690 MHz band is in a state of rapid evolution by incumbent ITFS and MDS licensees. The MDS industry has invested several billion dollars to develop broadband fixed wireless data systems in this band, including high-speed access to the Internet. These systems offer a significant opportunity for further competition with cable and digital subscriber line (DSL) services in the provision of broadband services in urban and rural areas. The band is used currently to provide video services for education and training in schools, health care centers and a wide variety of other institutions, as well as for the provision of a commercial video distribution service known as wireless cable. This spectrum is heavily licensed throughout the country and is ramping up for full operational use in the very near term. Interim Report, p. ii.

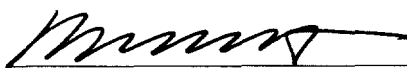
If anything, the 2500-2690 MHz band as presently allocated will be employed for a higher and better use than reallocation of the band for 3G service, particularly considering the fact that the reallocation proponents have not demonstrated the need for reallocation of additional mobile spectrum. MMDS/ITFS operations further well-established U.S. policy goals including broadband competition, closing the "Digital Divide" and furthering education. Reallocating the 2500-2690 MHz band to take spectrum away from advanced fixed wireless service in order to give it to advanced mobile wireless service would directly violate the President's directive that the federal government be technology neutral in spectrum allocation and licensing decisions. Interim Report, p. 1.

V. CONCLUSION

Based on the foregoing, as well as the reasons set forth in IIT's opening comments in this proceeding, IIT urges the Commission not to move precipitously in allocating new spectrum for 3G, and in any event not to reallocate the 2.5 – 2.69 GHz band for this service.

Respectfully submitted,

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